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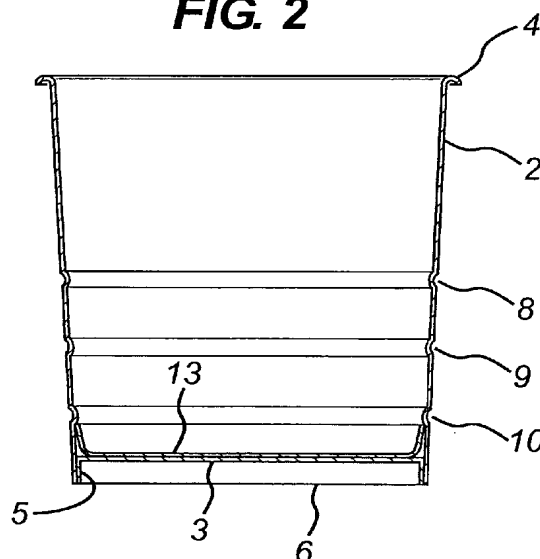
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(54) Title: CUPS FOR BEVERAGE DISPENSING

FIG. 2



(57) Abstract: A paper cup for an in-cup beverage dispensing system, wherein the cup comprises: a tapered tubular body having an wide top end that is open and a narrow bottom end that is closed in liquid-tight fashion by a base sheet extending transversely across the tubular body, characterized in that the cup further comprises: a first indentation in the side wall at a first location above the base of the cup, and a second indentation in the side wall at a second location above the base of the cup, wherein the indentations are positioned and configured such that the second indentation of a first cup according to the invention engages with the first indentation of a second, identical cup according to the invention to resist relative axial movement of the cups when the second cup is nested inside the first cup.

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CUPS FOR BEVERAGE DISPENSING

The present invention relates to improved paper cups for use in beverage dispensing systems of the in-cup type.

5

In-cup beverage dispensing systems are based on stacks of disposable cups, each cup containing a portion of beverage concentrate in its base. The cups are nested together in the stack, and the stack is then packaged, stored and transported conveniently by the vending operator. In use, the stack is removed from its packaging and loaded into the
10 dispenser of a dispensing machine. In response to a dispense command, the machine automatically splits a cup from the bottom of the stack and fills it with water to form the desired beverage. A typical in-cup system is available under the Registered Trade Mark KLIX from the Mars Drinks division of Mars, Incorporated.

15 These beverage dispensing systems provide the advantage that the beverage concentrate is supplied with the cups, so that the stocking and operation of the beverage dispenser are simplified. The stack of cups is compact and easy to transport. The water for dilution of the beverage is provided at the dispensing machine, typically from a conventional water supply, with optional purification, heating or cooling in the
20 dispensing machine.

Current, commercially-available in-cup systems all use plastic cups, for example as described in GB-A-2128468. The cups are formed by molding of thermoplastics such as polystyrene. Plastic cups are used because they can be molded with great precision,
25 which is considered necessary in order to provide snap-fitting projections in the cup that provide an effective seal between successive cups in the stack and a substantially constant separation force for separation of individual cups from the stack in the dispensing machine. In addition, plastic cups can be molded with an internal ledge to hold the cups in the correct spacing in the stack and prevent the cups from becoming
30 jammed together (known herein as "telescoping") by the application of an axial compressive force on the stack. Plastic cups of this kind are described, for example, in GB-A-1525132.

It would be desirable to provide an in-cup system based on paper cups. A system based on paper cups would be regarded as more environmentally friendly by consumers. However, the snap-fitting projections and anti-telescoping features of conventional, plastic cups for in-cup systems cannot simply be reproduced in paper, because paper cannot be shaped with the same precision as plastic, and does not have the same resilience as plastic.

In-cup systems based on paper cups were proposed in the 1960's. For example, US-A-3227273 describes an in-cup system based on a stack of paper cups, wherein each cup has a conical side wall and a circular base inserted and bonded into the narrow end of the conical side wall to give recessed base. Successive cups in the stack form an interference fit, with the base of each cup supporting the bottom of the next higher cup in the stack. A difficulty with this arrangement is unpredictable separation forces due to small variations in the interference fit between the cups. This problem is exacerbated when particles of the ingredient are trapped between the side walls of the stacked cups. In order to alleviate the problem, US-A-3227273 teaches filling the cups by inverting each cup, depositing the ingredient into the recessed base of the cup, and then applying the next cup in the stack over the inverted cup. This filling method helps to keep the side walls of the cups free of ingredient, thereby giving a more consistent interference fit between the cups. However, the method requires the use of cups with a deeply recessed base, and problem of unpredictable separation forces between the cups remains.

GB-A-2055038 addresses the above problem of imperfect interference fit between successive paper cups in a stack. It describes cups having a similar construction to those of US-A-3227273, but with an outward taper near the bottom of the cups, whereby the interference fit is formed primarily between an outer surface of the cup near the bottom of the cup and an internal surface of the next successive lower cup adjacent to the base of that cup. This arrangement also requires the use of cups having a deeply recessed base, and does not overcome the problem of variable separation force.

30

US-A-3526316 describes an in-cup system based on a stack of paper or plastic cups, wherein each cup has a side wall and a base, and indentations are provided in the side wall upon which the base of the next cup in the stack rests. This arrangement provides

poor sealing between successive cups in the stack, allowing beverage ingredient to escape from the stack when the stack is inverted. The separation force needed to split each cup from the bottom of the stack remains unpredictable. Furthermore, this arrangement is prone to telescoping when an axial compressive force is applied to the
5 stack.

EP-A-1227042 described paper cups having an anti-telescoping feature in the form of a circumferential indentation in the side wall of the cup, located above the base of the cup.

10 In a first aspect, the present invention provides a paper cup for an in-cup beverage dispensing system, wherein the cup comprises: a tapered tubular body having an wide top end that is open and a narrow bottom end that is closed in liquid-tight fashion by a base sheet extending transversely across the tubular body, characterized in that the cup further comprises: a first indentation in the side wall at a first location above the base of
15 the cup, and a second indentation in the side wall at a second location above the base of the cup, wherein the indentations are positioned and configured such that the second indentation of a first cup according to the invention engages with the first indentation of a second, identical cup according to the invention to resist relative axial movement of the cups when the second cup is nested inside the first cup.

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The base sheet in the cups according to the present invention may extend across the bottom of the tubular body (non-recessed base, for example in cups formed by deep-drawing), or it may extend across the tubular body at a distance from the bottom (recessed base, for example formed by inserting and bonding a disc-shaped sheet with a
25 circumferential flange into the bottom of the tubular body). Suitably the depth of the recessed base is less than about 10mm, for example less than about 6mm. This maximizes the volume of the cup that is available for the beverage.

The indentations preferably engage so as to resist relative axial movement of the cups in
30 both axial directions from the nested position, i.e. to resist both separation of the cups and telescoping of the cups. For example, the second indentation in the second cup may nest within the first indentation in the first cup at the engagement position. Resistance to separation of the cups comes mainly from the engagement between the indentations,

which means that the force required to separate the cups is more constant and controllable than in prior art paper cup systems, in which the resistance to separation was due solely to the interference fit between adjacent cups.

- 5 The term "indentation" suitably refers to a groove or rib formed in the side wall of the cup. The thickness of the side wall is suitably substantially constant, so that there is a complementary projection in the side wall opposite to the indentation. Suitably, the indentations comprise or consist essentially of embossed regions in the side walls defining the tubular body. The indentations may project inwardly or outwardly from the
10 side wall of the cup, but preferably the first and second indentations project the same way so that the first and second indentations can nest together at the engaged position. The indentations are preferably configured as rings that extend around the side wall of the cup, preferably substantially coaxially with the principal axis of the cup. The ring indentations may be interrupted or partial, but preferably they extend substantially
15 continuously around the side wall so as to apply a balanced force, and to resist leakage of the beverage ingredient stored between successive cups in a stack..

- The maximum depth of the indentations is suitably from about 0.5mm to about 3mm, for example from about 1mm to about 2mm. The width of the indentations (measured along
20 the axis of the cup) is suitably about 2mm to about 5mm, for example about 2mm to about 4mm.

- The first and second indentations are located above the base of the cup, with the first indentation being located above the second indentation. This confers greater stability
25 against rocking of the cup stack than would be achieved by indentations engaging proximate to the base of the cup, and reduces the possibility that ingredient in the base of the lower cup may interfere with engagement of the indentations. Suitably, the second indentation is located from about 5mm to about 50mm above the base of the cup, for example from about 10mm to about 30mm above the base of the cup. Suitably the first
30 indentation is located from about 10mm to about 15mm above the second indentation.

The locations of the first and second indentations are selected so that, when stacked with the indentations engaged, the vertical spacing between the lip of the first cup and the lip

of the second cup is suitably in the range of from about 10mm to about 15mm. This spacing suitably corresponds to the vertical spacing between the first and second indentations. The use of indentations according to the present invention permits this vertical spacing to be optimized for cup separation in each dispensing apparatus.

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Suitably, the cups according to the present invention are configured so that, when stacked with the indentations engaged, the base of the first cup does not contact the bottom of the second cup. That is to say the interior surface of the base of the first cup does not contact the bottom of next successive cup above the first cup in the stack.

10 Suitably, the vertical spacing between the base of the first cup and the bottom of the second cup in said stacked configuration is from about 1mm to about 15mm, for example from about 5mm to about 10mm. This provides the advantage that beverage ingredient in the base of the first cup cannot interfere with stacking of the cups by becoming blocked under the bottom of the second cup, thereby removing the need to
15 load the cups by inverting the cups and filling the recessed bases as taught in US-A-3526316.

Suitably, the cups according to the present invention comprise one or more further anti-telescoping features in addition to the engagement between the first and second
20 indentations.

In certain embodiment, the cups according to the present invention comprise a further anti-telescoping feature in the form of a third circumferential indentation located below the second indentation, wherein the spacing between the third circumferential
25 indentation and the second indentation is substantially equal to the spacing between the bottom of the cup and the third indentation. In these embodiments, the third indentation in the first cup functions as a ledge that supports the bottom of the second cup when the cups are nested with the first and second indentations in engagement.

30 Alternatively or additionally, the cups according to the invention may comprise an insert, preferably of paper, in the bottom of the cup, wherein an upper edge of the insert is spaced above the base of the cup to support the bottom of the next successive cup when the cups are nested with the first and second indentations in engagement. The insert is

hollow to accommodate the beverage preparation ingredient. The insert may suitably comprise a tubular sheet or a saucer-shaped sheet that is wedged or bonded into the bottom of the cup. For example, the insert may be wedged below the third indentation as described above. In certain embodiments, the insert is a saucer-shaped insert having a
5 base that abuts the base of the cup and side walls that abut the inside of the side wall of the cup, said upper edge being located at the top of the side walls of the saucer. The insert is preferably also formed of paper.

The cups according to this invention are paper cups. That is to say, at least the tubular
10 body and preferably substantially the whole cup is made from paper. The term "paper" encompasses all wet-laid cellulosic sheet materials, including cartonboard, and coated papers. Suitably, the sheet material used to form the cups is a typical paper stock for beverage and food containers having thickness in the range of from about 0.25mm to about 1mm, for example from about 0.25mm to about 0.6mm. The paper is suitably
15 coated on at least the inner surface with a water-resistant, food-acceptable coating, for example a polyethylene film coating. It will be appreciated that the cups according to the invention are suitably single-wall cups, but they may be insulating double-walled cups in certain embodiments. A paper handle of conventional construction may be attached to the side wall above the first indentation, such that the handle is folded flat
20 against the side wall when the cups are stacked.

The tapered tubular body of the cup is preferably substantially frustoconical. It may be formed in conventional fashion, for example by bending an arcuate cup preform into the tapered tube shape and bonding the preform along opposed edges to fix the tubular
25 shape. Preferably, an outwardly projecting lip, such as a rolled lip, is provided at the top of the cup to assist drinking from the cup, and to provide increased rigidity to the top of the cup. The rolled lip also provides a flange surface upon which the cup splitting mechanism of the dispensing apparatus can act.

30 The indentations are suitably provided in the preform, for example by embossing, before the preform is shaped into the tapered tube. The base is suitably formed from a disc of the paper material having an intumed circumferential flange that is bonded to the inside of the tubular body proximate to the narrow end thereof. In alternative embodiments, the

indentations may be formed in the side walls after forming of the tubular body by mounting the tubular body on a revolving support and indenting with a knurl as described in EP-A-1227042.

- 5 In a second aspect, the present invention provides a method of making a paper cup according to the invention, comprising the steps of: forming an arcuate preform of paper sheet material having first and second straight edges and first and second curved edges, wherein the preform is embossed with two or more arcuate lines of embossing extending substantially perpendicular to the radius of curvature of the curved edges, bending the
10 preform into a tapered tube and fixing the straight edges together to form a tapered tube having rings of embossing extending around the tube, and fixing a base into the narrow end of the tube.

- In a third aspect, the present invention provides a stack of at least two paper cups
15 according to the invention, wherein the first and second indentations of each adjacent pair of cups in the stack are engaged, and wherein a portion of a beverage preparation ingredient is stored between the bases of each adjacent pair of cups in the stack.

- The beverage preparation ingredient is normally a solid, water-soluble or water-dispersible ingredient. The ingredient is suitably a substantially shelf-stable beverage
20 concentrate, such as fruit-flavored drink concentrate, soluble coffee solids or soluble tea solids. Preferably, the total weight of the food or beverage concentrate in each cup is from about 0.5 grams to about 100 grams, preferably from about 1 gram to 20 grams.

- 25 Suitably, the stack according to this aspect of the invention contains at least about 5 cups, for example at least about 10 cups. Suitably, the stack is packaged in an oxygen- and moisture-impermeable container, such as a bag or a shrink-wrap.

- The stack according to this aspect of the invention may be used in conventional in-cup
30 dispensing machines with minimal modification.

Any feature that has been described in relation to any one aspect of the invention may also be applicable in relation to any other aspect of the invention.

An embodiment of the present invention will now be described in detail, for the purpose of illustration, with reference to the accompanying drawings, in which:

Figure 1 shows a perspective view of a cup according to the invention;

5 Figure 2 shows a longitudinal cross-section through the cup of Fig. 1;

Figure 3 shows a side elevation view of a stack of two cups according to the embodiment of Fig. 1; and

Figure 4 shows a longitudinal cross-section through the stack of Fig. 3;

10 Referring to Figs. 1 and 2, the cup 1 according to this embodiment of the invention comprises a tapered cylindrical body 2 formed of white paper stock having thickness approximately 0.5mm and coated with a thin polyethylene waterproofing film on its inner surface. The body 2 is formed from an arcuate preform by bending the preform into a cylinder and bonding the edges of the preform together with adhesive along seam
15 7 The top of the cylindrical body 2 is open, and is provided with a rolled lip 4 to assist drinking, and to provide enhanced rigidity to the top of the cup. A base 3 of the same paper material is inserted into the bottom of the cylindrical body and bonded thereto in conventional fashion by means of circumferential flange 5 on the base 3. The base 3 is thereby recessed about 5mm from the bottom 6 of the cup.

20

The cup body 2 is provided with a first circumferential indentation 8, a second circumferential indentation 9, and a third circumferential indentation 10, all of which are embossed in the paper stock material. The vertical spacing between the first circumferential indentation 8 and the second circumferential indentation 9 is
25 approximately equal to the vertical spacing between the bottom 6 of the cup and the third circumferential indentation 10. Likewise, the vertical spacing between the second circumferential indentation 9 and the third circumferential indentation 10 is approximately equal to the vertical spacing between the bottom 6 of the cup and the third circumferential indentation 10.

30

A cup-shaped insert 13 of the same paper stock material is wedged under the third circumferential indentation 10.

Referring to Figs. 3 and 4, a second cup 14 is nested inside the first cup 1. In this configuration, the lip 15 of the second cup is separated from the lip 4 of the first cup by a vertical distance of from about 1cm to about 1.5cm. This vertical distance is suitable for mechanical splitting of the cups in a dispensing machine. The stacked cups resist separation and telescoping by virtue of the nesting between the first and second indentations 8,9 on the first cup and the second and third indentations 16,17, respectively, on the second cup.

Telescoping of the stacked cups is also resisted by the abutment between the bottom 20 of the second cup and the top of the insert 13 inside the first cup. This abutment is assisted by the third circumferential indentation 10 in the first cup.

A powdered or granular beverage preparation ingredient 18 is enclosed in the bottom of the first cup. It can be seen that the nesting between the indentations in the first and second cups provides a seal to prevent escape of the powdered ingredient and ingress of moisture to the powdered ingredient. Furthermore, it can be seen that the powdered ingredient is unlikely to interfere with the abutment of the bottom of the second cup with the first cup, because there is a substantial clearance between the bottom of the second cup and the base of the first cup. This means that the cups can be loaded with the ingredient 18 and stacked without having to invert the cups as described in US-A-3526316.

The above embodiment has been described by way of example only. Many other embodiments falling within the scope of the accompanying claims will be apparent to the skilled reader.

CLAIMS

1. A paper cup for an in-cup beverage dispensing system, wherein the cup comprises: a tapered tubular body having an wide top end that is open and a narrow
5 bottom end that is closed in liquid-tight fashion by a base sheet extending transversely across the tubular body, characterized in that the cup further comprises: a first indentation in the side wall at a first location above the base of the cup, and a second indentation in the side wall at a second location above the base of the cup, wherein the indentations are positioned and configured such that the second indentation of a first cup
10 according to the invention engages with the first indentation of a second, identical cup according to the invention to resist relative axial movement of the cups when the second cup is nested inside the first cup.
2. A paper cup according to claim 1, wherein first and second indentations are
15 positioned and configured such that the second indentation in the second cup nests within the first indentation in the first cup when the second cup is nested inside the first cup to resist relative axial movement of the cups in both axial directions from the nested position.
- 20 3. A paper cup according to any preceding claim, wherein the indentations comprise or consist essentially of embossed regions in side walls defining the tubular body.
4. A paper cup according to any preceding claim, wherein the indentations comprise substantially continous indented rings extending around the tubular body.
25
5. A paper cup according to any preceding claim, wherein the second indentation is spaced from the base of the cup by a vertical distance of from about 5mm to about 50mm.
- 30 6. A paper cup according to any preceding claim, wherein the first indentation is spaced from the second indentation by a vertical distance of from about 10mm to about 15mm.

7. A paper cup according to any preceding claim, wherein the cup is configured so that, when first and second said cups are nested with the indentations engaged, the base of the lower cup does not abut the bottom of the upper cup.

5 8. A paper cup according to any preceding claim, further comprising an anti-telescoping feature in the form of a third indentation located below the second indentation, wherein the spacing between the third indentation and the second indentation is substantially equal to the spacing between the bottom of the cup and the third indentation.

10

9. A paper cup according to any preceding claim, further comprising an anti-telescoping feature in the form of an insert in the bottom of the cup, wherein an upper edge of the insert is spaced above the base of the cup to abut the bottom of the next successive cup when the cups are nested with the first and second indentations in
15 engagement.

10. A paper cup according to claim 9, wherein the insert is a saucer-shaped insert having a base that abuts the base of the cup and side walls that abut the inside of the side wall of the cup, said upper edge being located at the top of the side walls of the saucer.

20

11. A stack of at least two paper cups according to any of claims 1 to 10, wherein the first and second indentations of each adjacent pair of cups in the stack are engaged, and wherein a portion of a beverage preparation ingredient is stored between the bases of each adjacent pair of cups in the stack.

25

12. A stack according to claim 11, wherein the stack is packaged in an oxygen- and moisture-impermeable container.

13. A method of making a paper cup according to any preceding claim, comprising
30 the steps of: forming an arcuate preform of paper sheet material having first and second straight edges and first and second curved edges, wherein the preform is embossed with two or more arcuate lines of embossing extending substantially perpendicular to the radius of curvature of the curved edges, bending the preform into a tapered tube and

fixing the straight edges together to form a tapered tube having rings of embossing extending around the tube, and fixing a base into the narrow end of the tube.

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FIG. 1

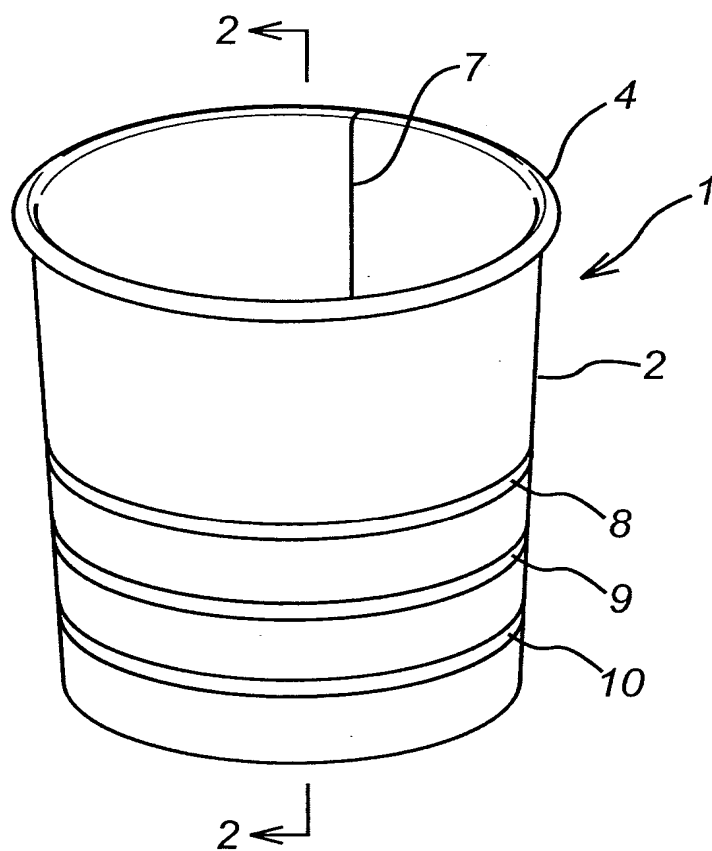
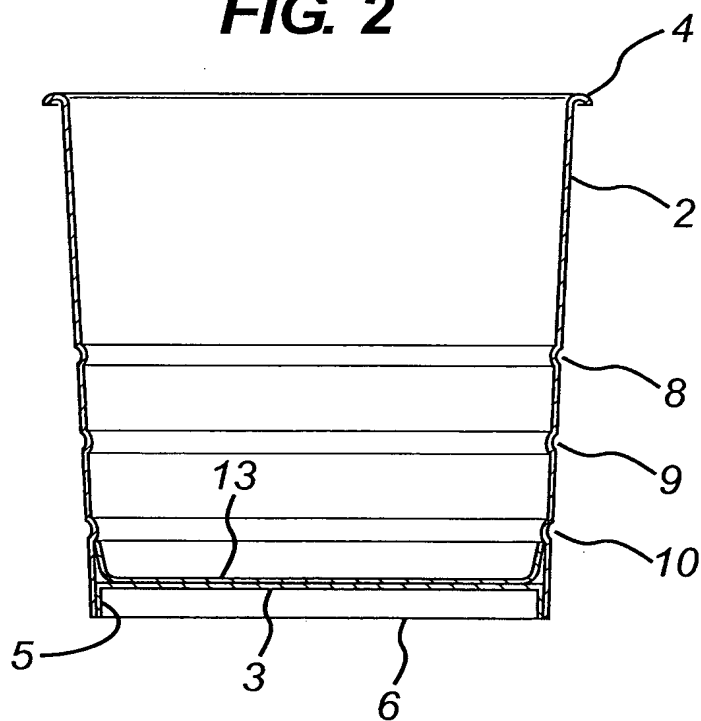


FIG. 2



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FIG. 3

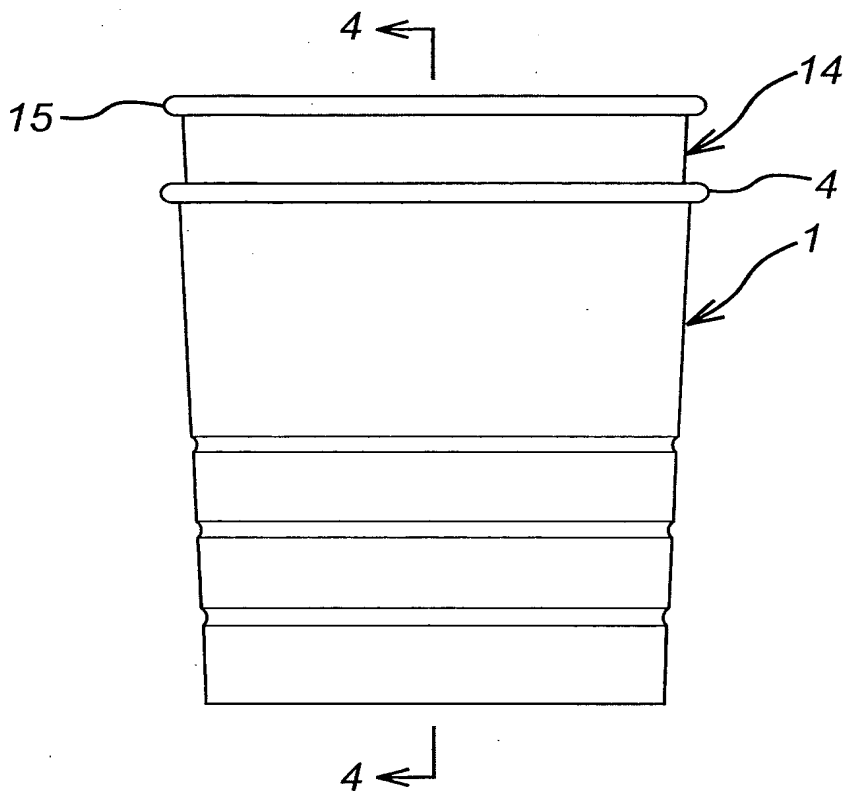
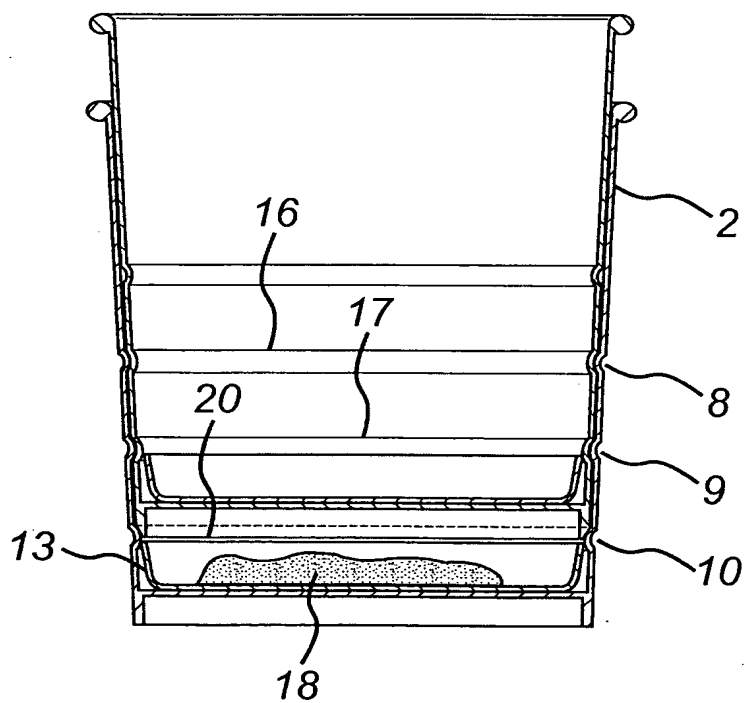


FIG. 4



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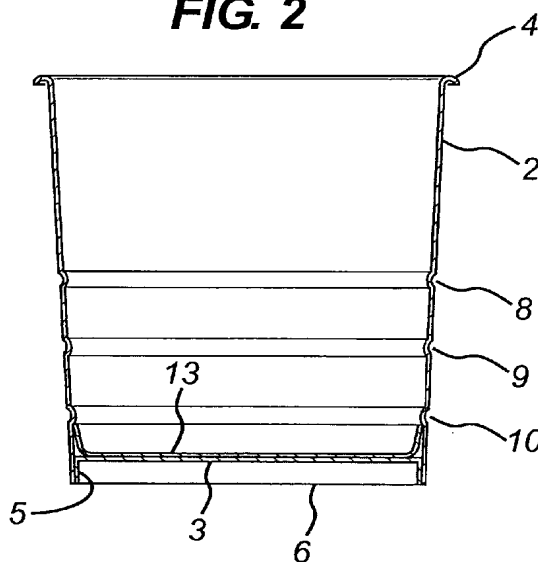
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FIG. 2



(57) Abstract: A paper cup (1) for an in-cup beverage dispensing system, wherein the cup comprises: a tapered tubular body (2) having an wide top end that is open and a narrow bottom end that is closed in liquid-tight fashion by a base (3) sheet extending transversely across the tubular body, characterized in that the cup further comprises: a first indentation (8) in the side wall at a first location above the base of the cup, and a second indentation (9) in the side wall at a second location above the base of the cup, wherein the indentations are positioned and configured such that the second indentation of a first cup according to the invention engages with the first indentation of a second, identical cup according to the invention to resist relative axial movement of the cups when the second cup is nested inside the first cup.



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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 171 306 A (SIC IND CONSULENZA [IT]) 21 September 1973 (1973-09-21)	1-7, 11, 12
Y	page 2, line 9 - page 3, line 9; claims 3,6; figures 1-4	8-10
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☒ Further documents are listed in the continuation of Box C.

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- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

30 March 2009

Date of mailing of the international search report

15/04/2009

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Grondin, David

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2008/003077

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 471 075 A (WOLF WILLIAM D) 7 October 1969 (1969-10-07)	1, 3, 4, 13
A	column 5, line 60 - column 6, line 72; figures 1-5	11
Y	GB 2 128 468 A (GEN FOODS LTD) 2 May 1984 (1984-05-02) page 1, line 120 - page 2, line 2; figures 1, 2	1-6, 11-13
Y	US 2002/130170 A1 (NAKASHIMA SETSUO [JP]) 19 September 2002 (2002-09-19) page 2, paragraph 31 - page 4, paragraph 53; figures 1-12	1-6, 11-13
Y	US 3 227 273 A (SYVERSON MARTELLE J ET AL) 4 January 1966 (1966-01-04) column 2, lines 43-70; figures 1-9	12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2008/003077

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International search report covers allsearchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-7,11-13

A paper cup for an in-cup beverage dispensing system, wherein the cup comprises: a tapered tubular body having an wide top end that is open and a narrow bottom end that is closed in liquid-tight fashion by a base sheet extending transversely across the tubular body, wherein the cup further comprises: a first indentation in the side wall at a first location above the base of the cup, and a second indentation in the side wall at a second location above the base of the cup, wherein the indentations are positioned and configured such that the second indentation of a first cup according to the invention engages with the first indentation of a second, identical cup according to the invention to resist relative axial movement of the cups when the second cup is nested inside the first cup; stack of at least two of these paper cups; and method of making such a cup.

2. claims: 1,8-10

Paper cup further comprising an anti-telescoping feature.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2008/003077

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